



State of Connecticut DEPARTMENT OF PUBLIC SAFETY
Division of Fire, Emergency and Building Services
Office of Education and Data Management

PLAN REVIEW for Architects, Engineers & Designers

- ◆ General Construction
- ◆ 1 & 2 Family Dwellings

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DESIGN
TRADES
CONFERENCE

Areas we will discuss:

- ◆ What are Construction Documents?
- ◆ Who can (*or are required to*) prepare them?
- ◆ What should you expect to provide in them?
- ◆ Requirements per:
 - 2005 CT State Bldg Code
 - ◆ 2003 IBC & related
 - ◆ 2003 IRC
 - ◆ 2009 CT Amendments

Terms Used in the Codes

- ◆ CONSTRUCTION DOCUMENTS
- ◆ DESIGN (or *designed*)
- ◆ SHOP DRAWINGS
- ◆ DESIGN PROFESSIONAL
- ◆ ENGINEERING

These terms should alert you to expect to provide written or graphic information

Construction Documents

◆ Definition:

Written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of a project **necessary** for obtaining a building permit.

– 2003 IBC Sect. 202.0 Definitions

- ◆ Should a plan reviewer have to guess or figure out whether a project complies with code?

Design

◆ Term not defined in code:

To plan by making a preliminary sketch, outline or drawing... To create or execute in an artistic or highly skilled manner

– Webster's Dictionary

◆ Example of usage:

1607.7.1 Handrails and guards. Handrail assemblies and guards shall be designed to resist a load of 50 plf (0.73 kN/m) applied in any direction at the top and to transfer this load through the supports to the structure.

Shop Drawings

◆ Term not defined in code:

Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the work.

– AIA General Conditions

◆ Commonly used for:

- Prefabricated wood or metal framing (*trusses*)
- Sprinkler systems (106.1.1.1)
- Concrete reinforcement
- Structural steel fabrication & erection (*framing, stairs, etc.*)
- Guardrail systems

Design Professional

◆ Definition of “Registered Design Professional”:

*An **architect, engineer or interior designer**, registered or licensed to practice professional architecture, engineering or interior design, as defined by the statutory requirements of the professional registration laws of the State of Connecticut, and acting within the scope of his or her practice.*

– 202.0 Definitions (CT amend.)

Engineering

◆ Term not defined in codes.

◆ Paragraph 1614.3:

*“...provided that an **engineering analysis** is submitted indicating the following...”*

[EB] 1614.3 Alterations. Alterations are permitted to be made to any structure without requiring the structure to comply with Sections 1613 through 1623 provided the alterations conform to the requirements for a new structure. Alterations that increase the seismic force in any existing structural element by more than 5 percent or decrease the design strength of any existing structural element to resist seismic forces by more than 5 percent shall not be permitted unless the entire seismic-force-resisting system is determined to conform to Sections 1613 through 1623 for a new structure.

Who can prepare construction documents?

- ◆ Building owner, homeowner?
- ◆ Contractor, builder?
- ◆ Drafting service, unlicensed designer?
- ◆ Licensed architect?
- ◆ Professional Engineer?
- ◆ Registered Interior Designer?

Any unlicensed person can prepare construction documents when...

- ◆ Under 5,000 SF (*exterior dimensions*)
 - New construction (*with exceptions*)
 - Additions (*with exceptions*)
 - Alterations
- ◆ 1 & 2 Family Dwellings (*IRC*)
- ◆ Agricultural Building

Reference: CGS 20-298

An architect or engineer is required when...

- ◆ Project 5,000 SF or more (*exterior dimensions*)
CGS Section 20-298
- ◆ New construction or additions of Use Groups A, E, I, H or R-1, regardless of size
 - Incl shop dwgs review & const observation
CGS 29-276c & SBC Section 106.1.4
- ◆ 3 stories or more or over 30,000 SF total gross area of Use Groups B, F, M & S
 - Incl shop dwgs review & const observation
SBC Section 106.1.4
- ◆ Nontransient dwellings units, more than 16 units or 24,000 SF total gross area
 - Incl shop dwgs review & const observation
SBC Section 106.1.4

What can an architect do?

◆ "Practice of architecture" defined:

...rendering or offering to render service by consultation, investigation, evaluations, preliminary studies, plans, specifications and coordination of structural factors concerning the aesthetic or structural design and contract administration of building construction or any other service in connection with the designing or contract administration of building construction...

-CGS Section 20-288

What can an engineer do?

◆ **Engineering** is defined as:

...rendering or offering to render to clients any professional service such as consultation, investigation, evaluation, planning, design or responsible supervision of construction, in connection with any public or privately-owned structures, buildings, machines, equipment, processes, works or projects in which the public welfare or the safeguarding of life, public health or property is concerned or involved...
-CGS 20-299

◆ Can perform minor architectural work:

The practice of engineering_ by a professional engineer licensed under the provisions of chapter 391, and the performance by such professional engineer of architectural work for which such professional engineer is qualified by education and experience and which is incidental to such professional engineer's engineering work
-CGS 20-298

What can a registered interior designer do?

◆ CGS 20-377k (I.D. title law):

...prepares plans and specifications for non-load-bearing interior construction, materials, finishes, space planning, reflected ceiling plans, furnishings, fixtures and equipment relative to the design of interior spaces in order to enhance and protect the health, safety and welfare of the public.

◆ Certificate of Registration (*no seal*)

◆ Doesn't qualify where codes or statutes specify Licensed Architect or Engineer

◆ They are "Registered Design Professionals" per code

Why BO's must look for the seal...

◆ CGS Section 20-293 (Architect's seal):

Except for plans for buildings or structures under the provisions of section 20-298, no official of this state or of any city, town or borough therein, charged with the enforcement of laws, ordinances or regulations relating to the construction or alteration of buildings or structures, shall accept or approve any plans or specifications that are not stamped with the seal of a licensed architect or a licensed professional engineer.

Construction Documents for 1 & 2 Family Dwellings

◆ 2003 IRC Section R106 – Construction Documents

R106.1 Submittal documents. Construction documents, special inspection and structural observation programs, and other data shall be submitted in one or more sets with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional.

Exception: The building official is authorized to waive the submission of construction documents and other data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that reviewing of construction documents is not necessary to obtain compliance with this code.

R106.1.1 Information on construction documents. Construction documents shall be drawn upon suitable material. Electronic media documents are permitted to be submitted when approved by the building official. Construction

documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the building official.

Checklists

- ◆ Sample Checklists
 - Search “2003 IRC checklists”
- ◆ 2003 IRC Plan Review Record available from ICC
 - www.iccsafe.org
 - \$30 for pack of 25

What is an acceptable set of construction documents for a residential project?

- ◆ “Builder’s Set”? What is that anyway?
- ◆ IRC breakdown:
 - 40% is M/P/E.
 - 35% is structural.
 - 25% is general planning.
- ◆ What do your construction documents show?

Construction Documents for Commercial-type Projects (*IBC buildings*)

◆ Definition (202.0):

Written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of a project necessary for obtaining a building permit...

Written documents

◆ Specifications

Examples:

- 07840 – Firestopping
- 09511 – Suspended Acoustical Ceilings
- 15072 – Vibration Isolation and Seismic Restraint

◆ Notes on Drawings

- Code compliance table
- Outline specifications
- Soils report

Graphic Documents

◆ Construction Drawings

- ◆ Site
- ◆ Structural
- ◆ Architectural
- ◆ Mechanical
- ◆ Plumbing
- ◆ Electrical
- ◆ Special Systems

◆ Shop Drawings

- ◆ Prefabricated structural
- ◆ Fire protection
- ◆ Seismic restraint
- ◆ Ductwork

Pictorial Documents

◆ Product technical literature

- ◆ Fire alarm system devices
- ◆ Door hardware
- ◆ Tested assemblies literature
- ◆ Sprinkler system devices
- ◆ Proprietary fire resistance rated barriers